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RE: Food Habits of St. Vincent Island Sambars and Hogs • Siefken

HOG AND SAMBAR FOOD HABITS ON SAINT VINCENT ISLAND, FLORIDA

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ABSTRACT: Sambar deer (Cervus unicolor) and feral hogs (Sus scrofa) coinhabit St. Vincent I and, Florida. Rumen samples were analyzed to assess the dietary overlap of these 2 species. Little competition for forage exists between these sympatric populations in the fall season. The refuge manager, adding this information (to his or her body of knowledge), can better manage these 2 species.

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Key words: Cervus unicolor, food habits, hogs, sambar deer, St. Vincent Island, Sus scrofa.

Three large mammals, exotic sambar deer, feral hogs, and white-tailed deer (Odocoileus virginianus) coinhabit St. Vincent Island, a part of St. Vincent National Wildlife Refuge. The management of these species has been debated since 1968, when the federal government took control. Shea (1986), in his study of the ecology of sambar deer on the island, reported that there is little competition for forage between white-tailed deer and sambar deer. Investigations of the food habits of feral hogs on St. Vincent's have not been conducted. However, Wood and Roark (1980), in their study of fall food habits of feral hogs in coastal South Carolina, found that acorns (Quercus spp.), hickory nuts (Carya spp.), and muscadines (Vitis spp.) composed the

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bulk of the diet. The objective of this study was to determine the fall dietary overlap of sambar deer and feral hogs on ^{the} ~~St. Vincent~~ ^{St. Vincent} Island, Florida.

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STUDY AREA AND METHODS

St. Vincent Island, a 4900-ha barrier island, is located in Franklin County, Florida, 0.5 km off the Gulf coast. The average annual rainfall is 139.65 cm and the mean temperature is 20.1 C. The fall 1987 population estimates were 200 white-tailed deer and 100 sambar deer (T. D. Carroll, ^{US?} Dep. Inter., pers. commun.). Censusing of the hog population was not conducted.

Rumen contents from 6 hogs and 5 sambar deer, collected by refuge personnel during November 1987, were individually bagged and frozen. Analysis was based upon the technique described by Harlow and Hooper (1971). One-quart samples were segregated according to size by washing each through a series of sieves (5.60 mm, 2.36 mm, 1.70 mm, and 0.85 mm). Contents of the top sieve (5.60 mm) were sorted, macroscopically and/or microscopically identified and volumetrically measured by water displacement. Materials measuring less than 0.25 ml were assigned a trace value. Contents of the smaller sieves were optically examined to insure no significant amount of a different material had passed through the largest sieve. Items that were not identifiable to genus or species were placed into appropriate categories. Percent volume by species was calculated for each sample and converted to aggregate percent volume for each hog and sambar group (Martin et al. 1946). In addition, percent occurrence was calculated for each category. To determine dietary overlap, Kulczynski's similarity index (SI) (Oosting 1956) was used.

RESULTS

Flora identification was made using the reference written by Long and Lakela (1971). Cabbage palm (Sabal palmetto) fruit represented the highest aggregate percent volume in feral hogs, followed in decreasing order by fungi, bird parts, unknown roots, acorns, and unknown invertebrates. Validation for the heavy use of these foods comes from their high percent occurrence (Table 1). All of the hog rumens contained green grass (Poaceae), which were too fragmented to confidently identify. Centipedes, millipedes, beetle larvae (Coleoptera), horsefly larvae (Tabanidae), mushroom beetles (Eryotillidae), grubworm beetles (Scarabaeidae), and crickets (Gryllidae) were identifiable using Richards and Davies (1978). All were found in trace quantities except centipedes, which made up 1.2 percent aggregate volume.

The sambar deer utilized green grasses most often, followed by yaupon (Ilex vomitoria) stems, oak (Quercus spp.) leaves, unknown herbaceous stems, unknown woody stems, and yaupon leaves. Again, the high percent occurrence is indicative of the heavy use of these foods (Table 2). A majority of the deer rumens contained green wax myrtle (Myrica cerifera) leaves, unknown plant fiber, unknown green woody leaves, dead grasses, and saw palmetto (Serenoa repens) leaves. These items occurred in low aggregate percent volumes. The remaining foods appeared in only 1 or 2 deer and each represented less than 4 percent aggregate volume.

DISCUSSION AND MANAGEMENT IMPLICATIONS

Macroscopic analysis of rumens is limited by the fact that potentially important small particles pass through the sieves during the washing of samples. However, the technique does provide an overall gross estimate of the types of forage consumed. Using Kulczynski's SI, the percentage of the hog and sambar diets that were identical was 4.7. This low dietary overlap indicates that

these 2 species are not competing for forage in the fall season. The only food that occurred in a large percentage of both deer and hog rumens was green grasses. The low aggregate percent volume in the latter may indicate that the grasses were picked up incidentally. The high use of grasses in the sambar diet agrees with the findings by Shea (1986).

Management of the 3 large mammals, white-tailed deer, sambar deer, and feral hogs, on St. Vincent's Island has been discussed over the last 20 years. The importance of the mast crop to each of these species has been debated. ^{found to be} Acorns were not an important food item for the sambar, ^{they} were ^{however} utilized more by the hogs. ^{consistently} The fall 1987 mast crop was average (T. D. Carroll, Dep. Inter., pers. commun.). ^{when a study animal was taken out} A study involving all 3 species is needed to complete the comparison of sambar, whitetail, and hog diets. Also, a census of the hog population would be helpful. Once this is accomplished, the degree of competition can be evaluated properly and sound management decisions ^{can} be made.

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Table 1. Diet composition of fall 1987 ^{stomach} ~~rumen~~ samples (N=6) from feral hogs on St. Vincent Island, Florida.

Forage	Aggregate Volume (%)	Occurrence (%)
<u>Sabal palmetto</u> fruit	31.4	66.8
Fungi	22.7	66.8
Bird parts	17.0	83.5
Unknown roots	9.7	83.5
<u>Quercus</u> sp. acorns	7.7	83.5
Unknown invertebrates	6.2	66.8
Poaceae (grasses, green)	2.4	100.0
Centipedes	1.2	50.1
<u>Diospyros virginiana</u> seeds	0.8	33.3
<u>Sonchus</u> sp. leaves	0.6	16.7
Frog	0.3	16.7
Coleoptera larvae	tr	16.7
Eryotillidae	tr	16.7
Gryllidae	tr	16.7
Millipedes	tr	16.7
Pabanidae larvae	tr	16.7
Scarabaeidae	tr	16.7
Unknown woody stems	<u>tr</u>	16.7
TOTAL	100.0	

Table 2. Diet composition of fall 1987 rumen samples (N=5) from sambar deer on St. Vincent Island, Florida.

Forage	Aggregate Volume (%)	Occurrence (%)
Poaceae (grasses, green)	17.4	100.0
<u>Ilex vomitoria</u> stems	16.7	40.0
<u>Quercus</u> spp. leaves, green	8.3	100.0
Unknown herbaceous stems	7.2	60.0
Unknown woody stems	6.4	80.0
<u>Ilex vomitoria</u> leaves	6.1	80.0
Unknown plant fiber	5.1	60.0
<u>Myrica cerifera</u> leaves	4.2	80.0
<u>Ilex glabra</u> stems	3.6	20.0
<u>Bacopa</u> sp. leaves	2.9	20.0
Unknown woody leaves, green	2.9	60.0
<u>Smilax</u> sp. leaves	2.9	40.0
Poaceae (grasses, dead)	2.8	60.0
<u>Ilex glabra</u> leaves	2.2	20.0
<u>Pinus</u> sp. leaves	2.2	40.0
<u>Rhus copallina</u> leaves	2.2	20.0
<u>Sabal palmetto</u> fruit	1.7	20.0
<u>Polygonum</u> sp. leaves	1.4	40.0
<u>Ilex</u> sp. leaves	0.7	20.0
Unknown woody leaves, dead	0.7	40.0
<u>Quercus</u> sp. acorns	0.6	40.0

Table 2 (cont.).

Forage	Aggregate Volume (%)	Occurrence (%)
<u>Serenoa repens</u> leaves	0.6	60.0
<u>Eleocharis</u> sp. leaves	0.4	20.0
<u>Vitis rotundifolia</u> leaves	0.4	20.0
<u>Vitis</u> sp. leaves	0.4	40.0
<u>Ceratiola ericoides</u>	tr	20.0
<u>Hydrocotyle</u> sp. leaves	tr	20.0
<u>Ilex</u> sp. fruit	tr	20.0
<u>Myrica cerifera</u> stems	tr	20.0
<u>Juniperus</u> sp. leaves	tr	40.0
<u>Tillandsia usneoides</u>	tr	40.0
<u>Typha</u> sp. leaves	tr	20.0
Unknown lizard	tr	20.0
<u>Vaccinium</u> sp. fruit	tr	20.0
TOTAL	100.0	